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Clostridial Dermatitis in U.S. Commercial Turkeys and Broilers

Clostridial dermatitis, a disease of turkeys and broilers, has increased in severity over the last several years. In 2010, the United States Animal Health Association (USAHA) ranked clostridial dermatitis among the top 10 disease issues in turkeys.¹ Dermatitis can be associated with *Staphylococcus aureus* or *Escherichia coli*; however, recently *Clostridium* spp. have been associated specifically with clostridial dermatitis. Skin lesions appear necrotic with edema and/or gas in the underlying subcutaneous tissue. Sudden death is a frequent presentation of this illness.²

Disease pathogenesis is poorly understood. It is believed to be caused by hematogenous transmission of clostridium from the gastrointestinal tract to muscle and skin where bacterial toxins are produced. Previous studies have suggested that risk factors relating to bird density, litter conditions, and hygiene are potential risk factors for disease.²

Clostridia are commonly found in the environment and intestines of healthy birds. Controlling clostridial dermatitis is difficult because managing the growth of clostridia is challenging, especially during the birds' growth phase. Uncontrolled growth of clostridia results in toxin production, which causes disease. The basic components for controlling clostridial dermatitis include:

- Reducing the number of clostridial microorganisms in birds and the environment, and
- Augmenting bird immunity²

Poultry 2010 study

The U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) conducted the Poultry 2010 study. One objective of the study was to determine the prevalence of clostridial dermatitis on U.S. turkey and broiler farms. The study focused on the Nation's largest poultry companies; 15 turkey companies and 14 broiler companies were selected to participate.



The selected companies represented 81.2 percent of broilers produced in 2009³ and 76.8 percent of turkeys slaughtered in 2009⁴ in the United States. Data regarding the occurrence of clostridial dermatitis were collected during Phase I of the study from May 27 through October 16, 2010. For further details on study methodology, see the NAHMS descriptive report "Poultry 2010 Structure of the U.S. Poultry Industry, 2010" available at <http://nahms.aphis.usda.gov/poultry>.

Results

Turkey farms in the Central region (see map above) had the highest percentage of farms with some degree of clostridial dermatitis problems during the previous 12 months: about half had some degree of disease, and 17.6 percent had severe disease. No turkey farms in the West region had clostridial dermatitis problems (table 1).

Table 1. Percentage of turkey grower farms by severity of clostridial dermatitis problems during the previous 12 months, and by region

Severity	Percent Turkey Grower Farms				
	Region	West	Central	East	All
Severe (nearly every flock, high mortality)	0.0	17.6	1.9	9.0	
Moderate	0.0	15.1	12.1	13.2	
Slight (few flocks, low mortality)	0.0	15.7	25.0	20.1	
None	100.0	51.6	61.0	57.7	
Total	100.0	100.0	100.0	100.0	100.0

About a fourth of broiler farms had some degree of clostridial dermatitis problems during the previous 12 months (table 2).

Regions for the Poultry 2010 study



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Table 2. Percentage of broiler farms by severity of clostridial dermatitis problems during the previous 12 months

Severity	Percent broiler farms
Severe (nearly every flock, high mortality)	0.8
Moderate	10.7
Slight (few flocks, low mortality)	15.8
None	72.7
Total	100.0

Additional information sheets are planned that will address risk factors associated with clostridial dermatitis in turkeys and laboratory analysis of biological samples taken from individual turkey farms.

References

1. USAHA. 2010. Transmissible diseases of poultry report.
2. Clark S, Porter R, McComb B, Lippert R, Olson S, Nohner S, Shivaprasad HL. 2010. Clostridial dermatitis and cellulitis: an emerging disease of turkeys. *Avian Dis* 54(2):788–794.
3. Watt Poultry USA Survey, Feb. 2010. Available at: www.WATTAgNet.com
4. WATT Poultry USA Turkey Profiles, Feb. 2010.

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